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10/551,625	09/29/2005	Seong-Yeol Hyeon	0630-2446PUS1	5508

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EXAMINER

MYERS, JESSICA L

ART UNIT	PAPER NUMBER
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3746

NOTIFICATION DATE	DELIVERY MODE
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06/27/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/551,625	Applicant(s) HYEON, SEONG-YEOL	
	Examiner JESSICA L. MYERS	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3/25/08.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/25/08, 12/18/07, 11/9/07, 9/29/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “mounting of the end portion of the springs, center of the springs, and center of the piston” in such a way that they are all in line (disclosed in claim 9) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

In Reference to Claim 2

Regarding claim 2, the phrase "or the like" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "or the like"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

In Reference to Claim 4

Regarding claim 4, the phrase "or the like" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "or the like"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-16 are rejected under 35 U.S.C. 102(b) as being anticipated by the WIPO International Publication, WO 02/079649 to Song (Song).

3. The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

In Reference to Claim 1

Song teaches a reciprocating compressor comprising:

a driving unit (reciprocating motor (20)) having an outer stator (outer stator (21B)) and an inner stator (inner stator (21A)) disposed at a predetermined air gap there between, and a moving member (magnet support member (22A)) positioned between the outer stator and the inner stator and linearly and reciprocally moved;

a compression unit (compression unit (30)) having a cylinder (cylinder (32)) fixed at an inner circumferential surface of the inner stator (see figure 3), and a piston (piston (31)) connected to the moving member and linearly moved in the cylinder;

a support unit (frame unit (41)) supporting the compression unit and the driving unit; and

a resonant spring unit (spring support (100) and springs (51 and 52)) positioned at a rear portion of the driving unit, installed at the support unit and inducing a resonant movement of the piston (see page 7 lines 7-13).

In Reference to Claim 2

Song teaches the compressor of claim 1 (see the rejection of claim 1 above), wherein the cylinder is fixed at the inner circumferential surface of the inner stator by a press-fit method or the like (The cylinder (32) of Song is fixed to the front frame (41) which holds the inner stator (21A), see page 2 lines 2-9).

In Reference to Claim 3

Song teaches the compressor of claim 1, wherein the support unit comprises:

a first frame (front frame (41)) supporting an outer circumferential surface of the cylinder, one side surface of the outer stator, and one side surface of the inner stator,

a second frame (middle frame (42)) supporting the other side surface of the outer stator; and

a third frame (rear frame (43)) coupled with the second frame and receiving the resonant spring unit (see page 2 lines 10-14).

In Reference to Claim 4

Song teaches the compressor of claim 3 (see the rejection of claim 3 above), wherein, in the first frame, an outer circumferential surface of the cylinder is fixed at the inner circumferential surface of the first frame by a press-fit method or the like (The cylinder (32) of Song is fixed to the front frame (41) which holds the inner stator (21A), see page 2 lines 2-9), one side surface of the inner stator is supported at its inner side

surface, and one side surface of the outer stator is supported at its outer side surface (see figure 3).

In Reference to Claim 5

Song teaches the compressor of claim 3 (see the rejection of claim 3 above), wherein the resonant spring unit comprising:

a spring support member (spring support (100), see figure 7) mounted to a portion where the piston and the moving member are connected (see figure 3 as well as page 7 lines 14-18);

plural first resonant springs (front springs (51)) disposed between the second frame and one side surface of the spring support member; and

plural second resonant springs (rear springs (52)) disposed between the third frame and the other side surface of the spring support member.

In Reference to Claim 6

Song teaches the compressor of claim 5 (see the rejection of claim 5 above), wherein the first resonant springs are arranged at a predetermined interval in a circumferential direction (see figure 7, where the first springs (51) are arranged at approximately every 90° circumferentially), and the second resonant springs are arranged between the first resonant springs respectively (the second springs (52) are arranged in between the first springs by approximately 45°).

In Reference to Claim 7

Song teaches the compressor of claim 5 (see the rejection of claim 5 above), wherein the first resonant springs and the second resonant springs are disposed so as

to overlap at a predetermined section in an axial direction of the compressor (see figure 3 where the front and rear springs overlap axially between the rear supports (30) and the front supports (120)).

In Reference to Claim 8

Song teaches the compressor of claim 5 (see the rejection of claim 5 above), wherein the first and second springs are disposed to be parallel in the axial direction of the compressor (see figure 3 where the first and second springs lie parallel to the central axis of the piston as well as to each other).

In Reference to Claim 9

Song teaches the compressor of claim 5 (see the rejection of claim 5 above), wherein the first and the second resonant springs are formed of compression coil springs, and the first and the second resonant springs is mounted at spring support member so that an end portion of spring, a center of spring and a center of piston are arranged in line (The springs are in line with the piston in the sense that where the first and second springs lie parallel to the central axis of the piston as well as to each other).

In Reference to Claim 10

Song teaches the compressor of claim 5 (see the rejection of claim 5 above), wherein the spring support member comprising:

a coupling portion (support body (110), which is fixed to a member that couples the piston (31) to the magnet support member (22A)) coupled with a portion where the moving member and the piston are connected, and positioned at a rear portion of the piston (see figure 3);

a first support portion (front supports (120)) prolonged from the edge of the coupling portion at a predetermined interval in a circumferential direction and supporting the first resonant spring (see figure 7, where the first springs (51) and their supports are arranged at approximately every 90° circumferentially); and

a second support portion (rear supports (130)) positioned between the first support portions and supporting the second resonant spring (the second springs (52) and their supports are arranged in between the first springs by approximately 45°).

In Reference to Claim 11

Song teaches the compressor of claim 10 (see the rejection of claim 10 above), wherein the disc-shaped coupling portion has a passage through which a fluid passes (see figure 5 where support body (110) has a hole through its center), at its center portion, and fixed at portion where the piston and the moving member are connected (the support body (110) is fixed to the member that couples the piston (31) to the magnet support member (22A)).

In Reference to Claim 12

Song teaches the compressor of claim 10 (see the rejection of claim 10 above), wherein the first support portion is bent, rearwardly prolonged from the edge of the coupling portion (see figure 6 where front supports (120) are bent out of the lane that contains support body (110)), and formed so that its end portion is bent toward outside of the coupling portion to support the first resonant springs (it is bent outside the plane containing (110)).

In Reference to Claim 13

Song teaches the compressor of claim 10 (see the rejection of claim 10 above), wherein the second support portion is radially prolonged from the edge of the coupling portion at a predetermined interval (see figure 7 where the second supports (230) extend a given distance radially from the center of support portion (210)).

In Reference to Claim 14

Song teaches the compressor of claim 10 (see the rejection of claim 10 above), wherein the first support portion and the second support portion are alternatively formed in a circumferential direction of the coupling portion (see figure 7, where the first springs (51) are arranged at approximately every 90° circumferentially and the second springs (52) are arranged in between the first springs by approximately 45°).

In Reference to Claim 15

Song teaches the compressor of claim 10 (see the rejection of claim 10 above), wherein spring sheet portions for fixing the first and the second resonant springs are formed at the first and the second support portions respectively (each support portion (120, 130) has a fixing protrusion (120a, 130a) at its end for fixing the springs to the support, see figure 6).

In Reference to Claim 16

Song teaches the compressor of claim 15 (see the rejection of claim 15 above), wherein the spring seat portions respectively are formed as a cylindrical shape (the fixing protrusion are cylinders that extend from the face of the support fingers) which is extended from respective sides of the first and second supporting portions, and the

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spring seat portions respectively have a hole formed therein (there is a hole formed at the center of each fixing protrusion).

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-16 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent Application Publication 2001/0043870 to Song (Song).

In Reference to Claim 1

Song teaches a reciprocating compressor comprising:

a driving unit having an outer stator (outer stator (4B)) and an inner stator (inner stator (4A)) disposed at a predetermined air gap there between, and a moving member (magnet frame (5A)) positioned between the outer stator and the inner stator and linearly and reciprocally moved;

a compression unit (compress unit (C)) having a cylinder (cylinder (3)) fixed at an inner circumferential surface of the inner stator (see figure 4), and a piston (piston (6)) connected to the moving member and linearly moved in the cylinder;

a support unit (frame unit (1)) supporting the compression unit and the driving unit; and

a resonant spring unit (spring supports (13 and 15) and springs (20A and 20B)) positioned at a rear portion of the driving unit, installed at the support unit and inducing a resonant movement of the piston

In Reference to Claim 2

Song teaches the compressor of claim 1 (see the rejection of claim 1 above), wherein the cylinder is fixed at the inner circumferential surface of the inner stator by a press-fit method or the like (The cylinder (3) of Song is fixed to the front frame (1) which holds the inner stator (4A), see paragraph [0007]).

In Reference to Claim 3

Song teaches the compressor of claim 1, wherein the support unit comprises:

a first frame (the front of front frame (1)) supporting an outer circumferential surface of the cylinder, one side surface of the outer stator, and one side surface of the inner stator,

a second frame (the rear of front frame (1) that holds the outer stator (4B) in place) supporting the other side surface of the outer stator; and

a third frame (cover (2)) coupled with the second frame and receiving the resonant spring unit.

In Reference to Claim 4

Song teaches the compressor of claim 3 (see the rejection of claim 3 above), wherein, in the first frame, an outer circumferential surface of the cylinder is fixed at the inner circumferential surface of the first frame by a press-fit method or the like (The cylinder (3) of Song is fixed to the front frame (1) which holds the inner stator (4A), see

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paragraph [0007]), one side surface of the inner stator is supported at its inner side surface, and one side surface of the outer stator is supported at its outer side surface (see figure 4).

In Reference to Claim 5

Song teaches the compressor of claim 3 (see the rejection of claim 3 above), wherein the resonant spring unit comprising:

a spring support member (spring supporters (13 and 15), see figure 5B) mounted to a portion where the piston and the moving member are connected;

plural first resonant springs (inner resonance springs (20A)) disposed between the second frame and one side surface of the spring support member; and

plural second resonant springs (outer resonance springs (20B)) disposed between the third frame and the other side surface of the spring support member.

In Reference to Claim 6

Song teaches the compressor of claim 5 (see the rejection of claim 5 above), wherein the first resonant springs are arranged at a predetermined interval in a circumferential direction (see figure 5B, where the first springs (20A) are arranged at approximately every 90° circumferentially), and the second resonant springs are arranged between the first resonant springs respectively (the second springs (20B) are arranged in between the first springs by approximately 45°).

In Reference to Claim 7

Song teaches the compressor of claim 5 (see the rejection of claim 5 above), wherein the first resonant springs and the second resonant springs are disposed so as

to overlap at a predetermined section in an axial direction of the compressor (see figure 4 where the front and rear springs overlap axially between the rear support of frame (1) and the cover (2)).

In Reference to Claim 8

Song teaches the compressor of claim 5 (see the rejection of claim 5 above), wherein the first and second springs are disposed to be parallel in the axial direction of the compressor (see figure 4 where the first and second springs lie parallel to the central axis of the piston as well as to each other).

In Reference to Claim 9

Song teaches the compressor of claim 5 (see the rejection of claim 5 above), wherein the first and the second resonant springs are formed of compression coil springs, and the first and the second resonant springs is mounted at spring support member so that an end portion of spring, a center of spring and a center of piston are arranged in line (The springs are in line with the piston in the sense that where the first and second springs lie parallel to the central axis of the piston as well as to each other).

In Reference to Claim 10

Song teaches the compressor of claim 5 (see the rejection of claim 5 above), wherein the spring support member comprising:

a coupling portion (supporter (15), which is fixed to a member that couples the piston (6) to the magnet assembly (10)) coupled with a portion where the moving member and the piston are connected, and positioned at a rear portion of the piston (see figure 4);

a first support portion (front supports (11a)) prolonged from the edge of the coupling portion at a predetermined interval in a circumferential direction and supporting the first resonant spring (see figure 5B, where the first springs (20A) and their supports are arranged at approximately every 90° circumferentially); and

a second support portion (rear supports (13b)) positioned between the first support portions and supporting the second resonant spring (the second springs (20B) and their supports are arranged in between the first springs by approximately 45°).

In Reference to Claim 11

Song teaches the compressor of claim 10 (see the rejection of claim 10 above), wherein the disc-shaped coupling portion has a passage through which a fluid passes (see figure 5B where support body has a hole through its center), at its center portion, and fixed at portion where the piston and the moving member are connected (supporter (15), which is fixed to a member that couples the piston (6) to the magnet assembly (10)).

In Reference to Claim 12

Song teaches the compressor of claim 10 (see the rejection of claim 10 above), wherein the first support portion is bent, rearwardly prolonged from the edge of the coupling portion (see figure 5B where front supports (11b) are bent out of the plane that contains support body (11)), and formed so that its end portion is bent toward outside of the coupling portion to support the first resonant springs (it is bent outside the plane containing (11)).

In Reference to Claim 13

Song teaches the compressor of claim 10 (see the rejection of claim 10 above), wherein the second support portion is radially prolonged from the edge of the coupling portion at a predetermined interval (see figure 5B where the second supports (13b) extend a given distance radially from the center of support portion (13)).

In Reference to Claim 14

Song teaches the compressor of claim 10 (see the rejection of claim 10 above), wherein the first support portion and the second support portion are alternatively formed in a circumferential direction of the coupling portion (see figure 5B, where the first springs (20A) are arranged at approximately every 90° circumferentially and the second springs (20B) are arranged in between the first springs by approximately 45°).

In Reference to Claim 15

Song teaches the compressor of claim 10 (see the rejection of claim 10 above), wherein spring sheet portions for fixing the first and the second resonant springs are formed at the first and the second support portions respectively (each support portion (11, 13) has a fixing protrusion at its end for fixing the springs to the support, see figure 5A).

In Reference to Claim 16

Song teaches the compressor of claim 15 (see the rejection of claim 15 above), wherein the spring seat portions respectively are formed as a cylindrical shape (the fixing protrusion are cylinders that extend from the face of the support fingers) which is extended from respective sides of the first and second supporting portions, and the

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spring seat portions respectively have a hole formed therein (there is a hole formed at the center of each fixing protrusion).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 2,801,045 to Phillipp teaches a spring fixing means that is similar to applicant's.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JESSICA L. MYERS whose telephone number is (571)270-5059. The examiner can normally be reached on Monday through Friday, 8:30am to 5:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/
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/JLM